**Marble Chip Simulation**

**Experiment 1: Changing concentration**

**To do:** use **one marble chip** and changing the **concentration of acid**

**Record:**mass of marble chip =

**To do:** set the experiment to **2 mol L-1 acid** *(this is concentrated)*

and

let the experiment run for **10 minutes** by the clock on screen

**Record:** write down what you observe?

**To do:** Stop the experiment and click graph. Look at graph but do not clear.

**To do:** Repeat the experiment with a different concentration by clicking “Back”

**To do:** Change the concentration to 1 mol L-1 acid and repeat.

**To do:** Repeat for 0.5 molL-1 (this is dilute) acid.

**Questions:**

**1)** What do you notice about the initial slope of the graph in the 3 experiments?

**2)** Explain the difference between the 3 graphs but firstly list the phrases that you must use in your answer

*change in concentration: phrases I MUST use in my answer*

My explanation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Experiment 2: Changing the surface area**

**To do:** use **2 mol L-1 acid** and set the experiment to **1 or 10 or 100 marble chips**

**Questions**

**1)** What happens to the mass of the marble chips as the number is increased?

**2)** How does the surface area change as the number of marble chips is increased?

**To do:** choose either 1, 10 or 100 marble chips

and

run the experiment until the mass stops decreasing

**Record:** What do you observe as the reactions proceed?

**To do:** Select graph and look at it but do not clear the graphs between experiments

**Questions**

**1)** Describe the shape of each graph.

**2)** Compare the 3 graphs and explain why the slope is initially different but the final mass is always the same*.*

*change in surface area: phrases I MUST use in my answer*

My explanation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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